

EMIGRATION CREEK

Total Maximum Daily Load (TMDL) Study



Emigration Improvement District (EID) Meeting



March 3, 2011

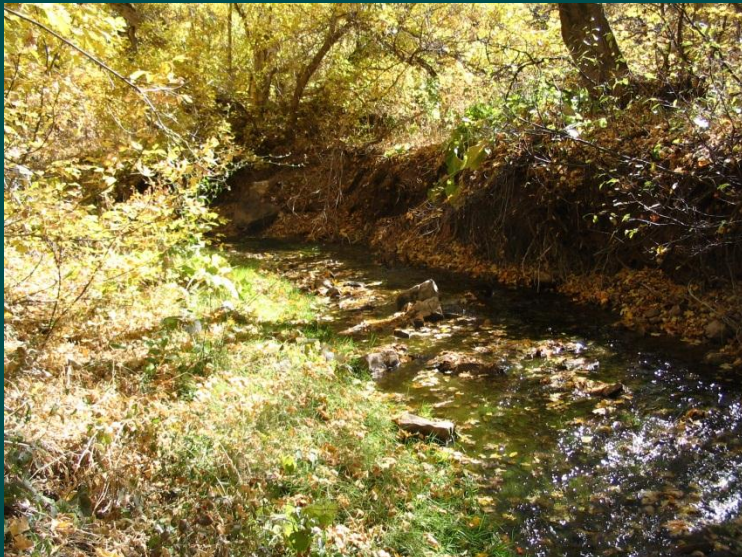


EMIGRATION CREEK TMDL STUDY

Roles and Authority



Emigration Canyon



FEDERAL ROLE

- Administered by EPA
- Clean Water Act (1972)
- Restore and Maintain the Chemical, Physical, and Biological Integrity of the Nation's Waters

STATE (DWQ) ROLE

- Authority has been delegated to States
- Chapter 5 of Utah's Environmental Quality Code (R317)
 - Limits Discharges of Pollutants to Waters of the State
 - Authorizes Setting up Beneficial Uses of Waters
 - Authorizes Establishing Water Quality Standards to Protect Beneficial Uses

SALT LAKE COUNTY (SLCo) ROLE

- Salt Lake County is the Designated Area-Wide Water Quality Planning Agency
- Countywide Flood Control Authority
- SLCo was contracted by the State to write Element I TMDL
- Water quality data collection throughout the County

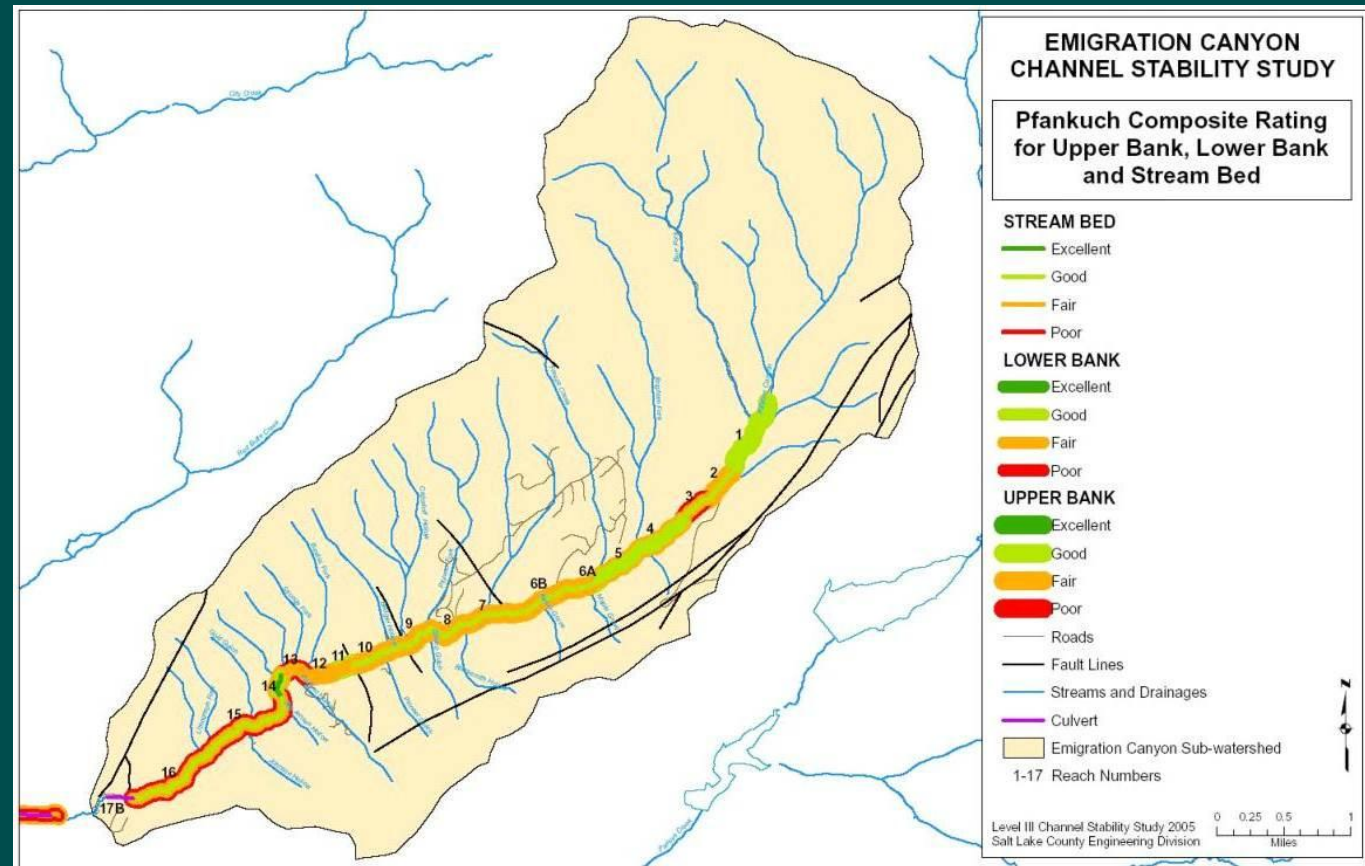
HEALTH DEPARTMENT (SLVHD) ROLE

- Regulates Septic Systems and on-site waste water disposal
 - UAC §26A-1-121(1) and Health Regulation #13

EMIGRATION CREEK TMDL STUDY

EMIGRATION CREEK SUB-WATERSHED

- Drainage area of approximately 18 square miles
- Average annual discharge from the sub-watershed is estimated between 4,400 and 6,110 acre-feet (about 2-3% of the runoff from the Wasatch Front)
- Emigration Creek is classified as 2B and 3A for beneficial use
 - 2B non-contact recreational use
 - 3A Cold water species of game fish, including necessary aquatic organisms
- Land use is primarily residential with limited commercial



Emigration Creek Level III Stability Assessment—Upper, Lower, and Streambed
Salt Lake County Engineering

EMIGRATION CREEK TMDL STUDY

EMIGRATION CREEK SUB-WATERSHED

WATER QUALITY

- In 2000, Emigration Creek was listed as an impaired waterbody for its recreational use by the Utah Division of Water Quality (DWQ) based on data collected showing high bacterial levels.
- “Impaired waters” are those waterbodies that currently fail to meet water quality standards established by the State.
- Subsequent to listing, the State is required to develop a Total Maximum Daily Load (TMDL) water quality study to establish pollutant level reductions in impaired waters and achieve water quality standards.



Emigration Creek



Emigration Creek

$$\text{TMDL} = \Sigma \text{WLA} + \Sigma \text{LA} + \text{MOS}$$

WLA is the sum of wasteload allocations (**point sources**)

LA is the sum of load allocations (**nonpoint sources and background**)

MOS is the **margin of safety**.

TOTAL MAXIMUM DAILY LOAD (TMDL) STUDY

- A TMDL is a calculation of the maximum amount of a pollutant that a waterbody can receive on a daily basis and still meet water quality standards.
- TMDLs are defined as, “The sum of nonpoint sources, (including natural background concentrations), point sources, and a margin of safety, so as to attain or maintain the water quality standards of a water body.”
- The State Division of Water Quality contracted with Salt Lake County to conduct the **Total Maximum Daily Load (TMDL)** for Emigration Creek: Work Element I Evaluation of Existing Information.

www.watershed.slco.org

E. coli Numeric Standard

- Emigration Creek is classified as a 2B waterbody, meaning its protective for secondary contact.
- For drinking water and secondary contact recreation uses:
 - Not to exceed 206 MPN per 100 ml as 30 day geometric mean (5 samples equally spaced over 30 days)
 - Not to exceed 668 MPN per 100 ml in one sample in 30 days

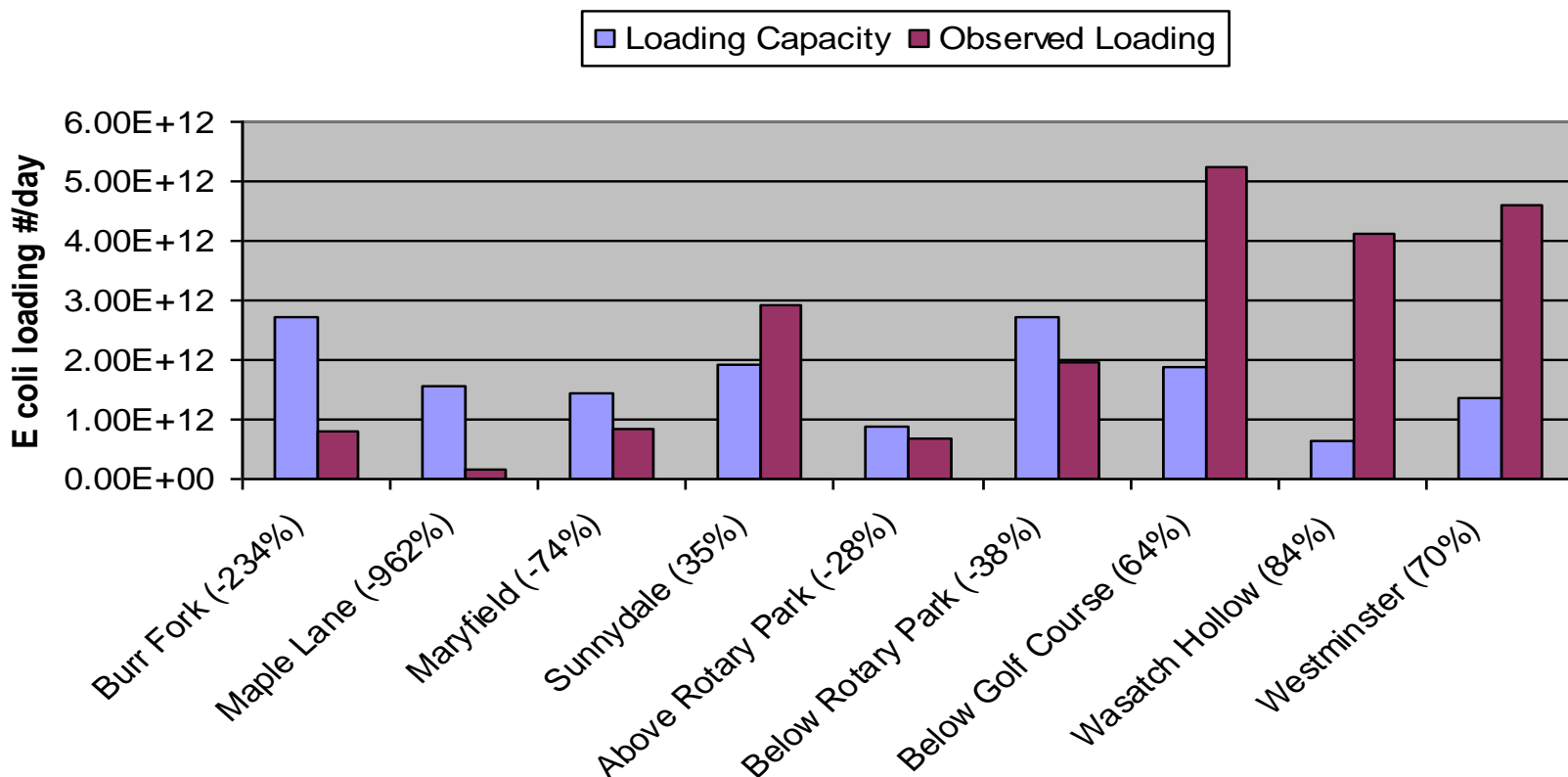
E. coli Assessment Methodology

- Rule 1 states that Emigration Creek should not have any 5-day rolling averages exceed 206 MPN/100 ml from samples collected from May through September.
- Rule 2 states that Emigration Creek should not have greater than 10% single samples exceed 668 MPN/100 ml.
- Emigration Creek below Rotary Park is the compliance point.
 - Exceeds Rule 1 – 32% of the time (May-Sept)
 - Exceeds Rule 2 – 14% of the time (May-Sept)

EMIGRATION CREEK TMDL STUDY

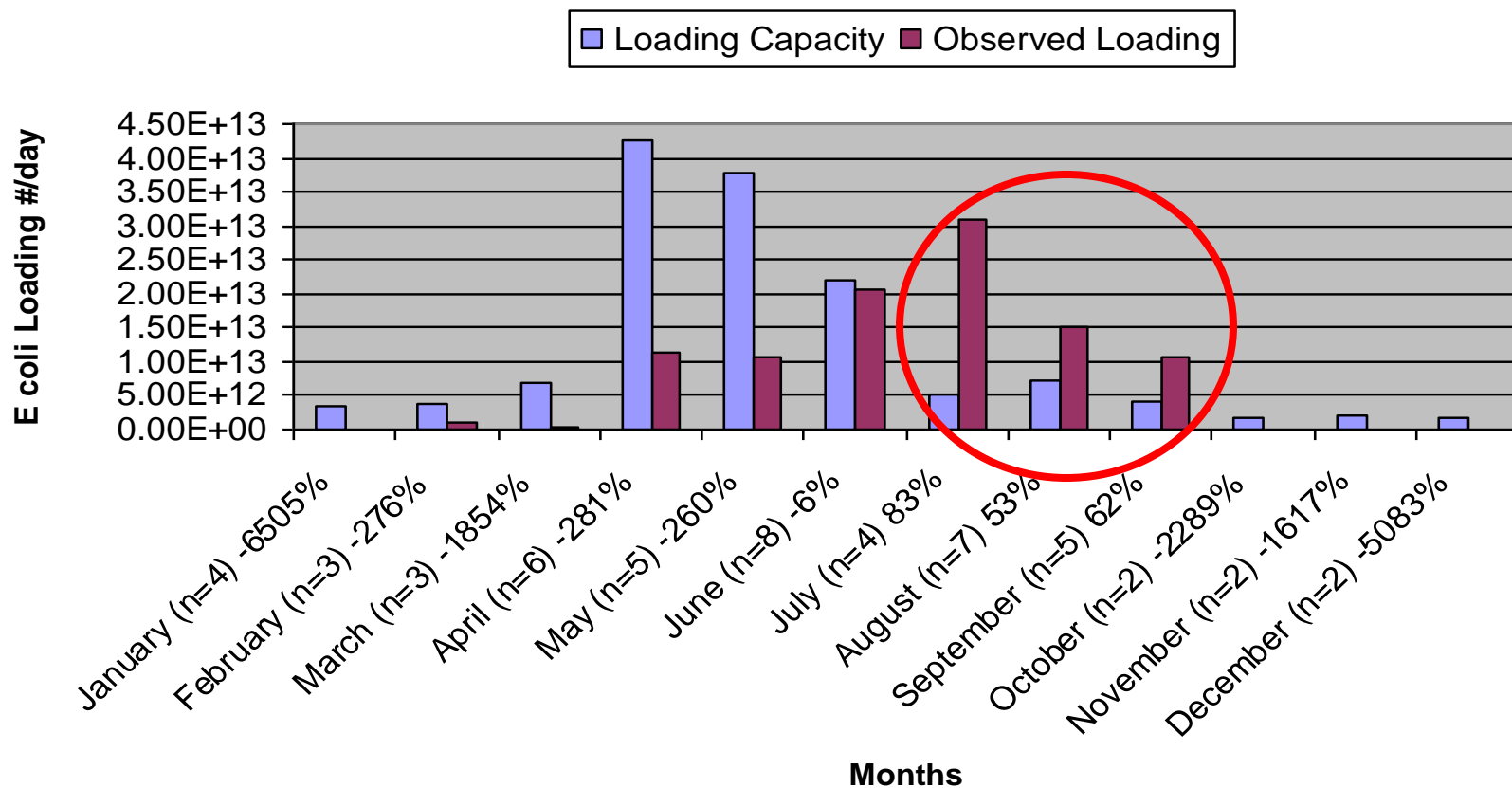
E. coli Loading in Emigration Creek

E coli Loads in Emigration Creek



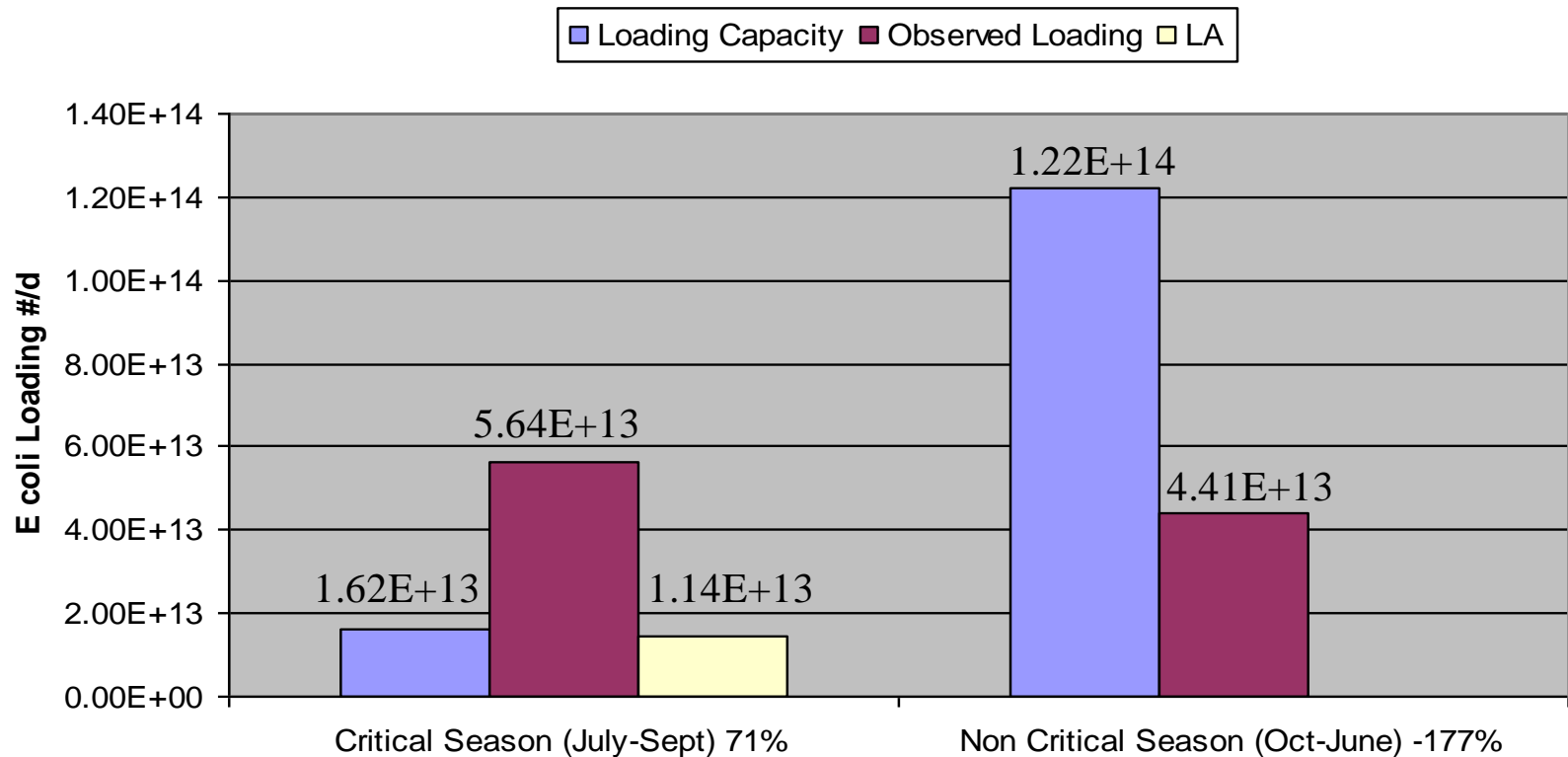
Monthly Loading

Loading Capacity vs Observed Loading at Emigration Ck Below Rotary Park



Seasonal Loading

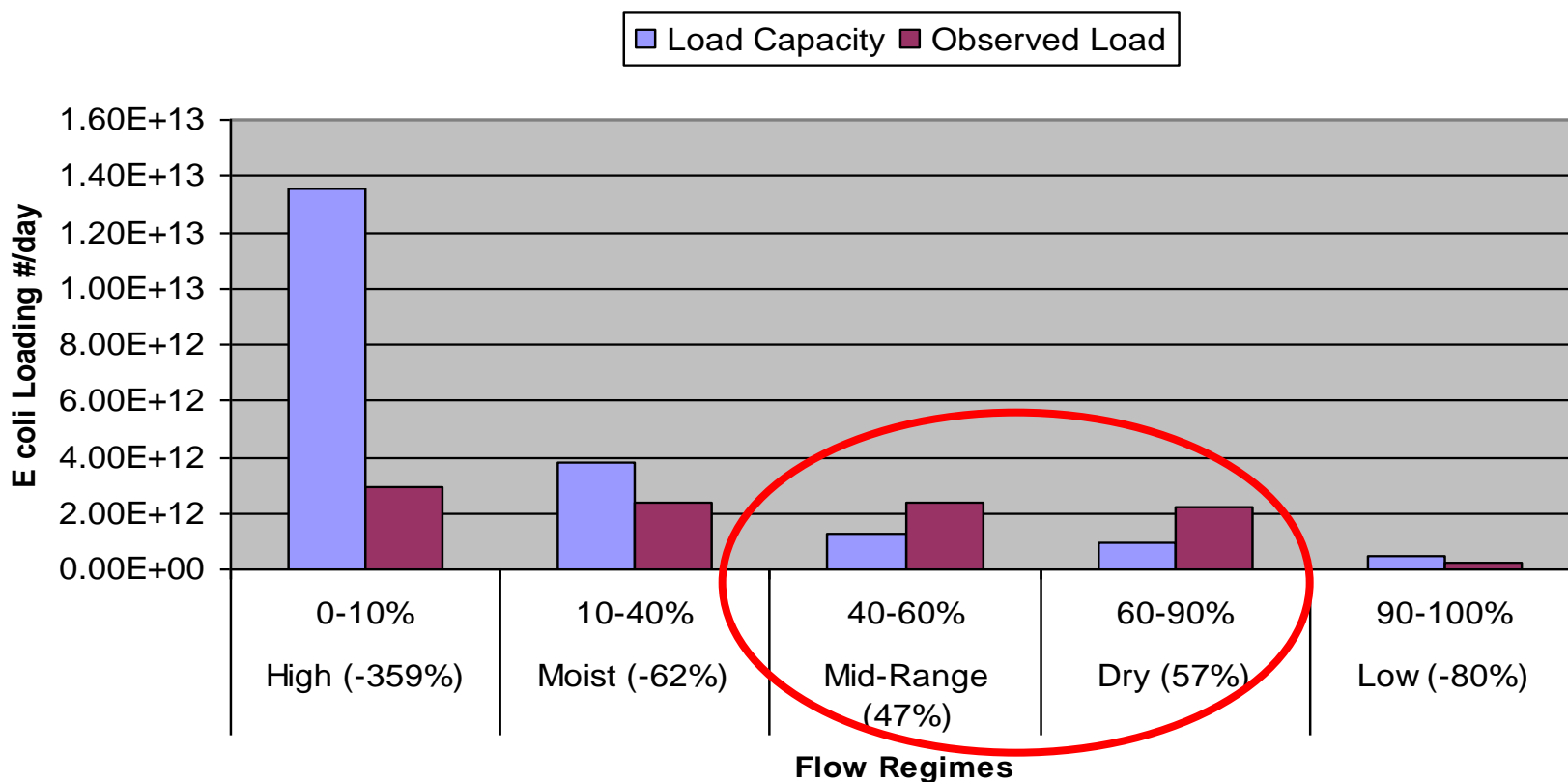
Seasonal E coli Loading at Emigration Ck Below Rotary Park



No point sources in watershed, thus all load reduction comes from non-point sources.

E. coli Loading Broken Up by Flow Regimes

E coli Loads at Emigration Ck Below Rotary Park



Link Exceedances in Flow Regimes to Sources

- Major reduction needed under low flow regimes can be linked to point sources and reductions needed under high flow conditions can be linked to non point sources.
- Emigration Ck needs a reduction in the **mid-range to dry flow regimes.**
- BMPs should include riparian areas, identifiable sources, and upland sources.
- BMPs should focus on source control and delivery methods.

TMDL Study Timeline:

Approximate Date	Task
March 2011	Start Writing of DRAFT Element II TMDL
April 18, 2011	Compilation of DRAFT Element II TMDL
Early May 2011	Internal DRAFT Element II TMDL Complete
Early May 2011	Present DRAFT Element II TMDL to EID and Stakeholders
Late May 2011	EID and Stakeholders Comments Due
Early June 2011	Present DRAFT Element II TMDL at Public Meeting
Early June 2011	DWQ Submit Notice for Public Comment
Early July 2011	Public Comments Due
July 27, 2011	Present Element II TMDL to Utah Water Quality Board
August 15, 2011	Submit Element II TMDL to EPA

EMIGRATION CREEK TMDL STUDY

QUESTIONS?

Salt Lake County
Watershed Planning &
Restoration

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→ Sign up for the Salt Lake
County Jordan River
Watershed Council (JRWC)
Listserv

Utah Division of Water Quality

www.waterquality.utah.gov

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Emigration Creek